

REMARKS

Responsive to the present Office action applicants propose to amend their claims in order to more particularly point out a preferred aspect of their invention, a preferred method in which the oligomer also comprises component (c), that is an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group. The basis for this can be found on page 4, first paragraph of the specification of the Application. Thus, no new matter has been added. The amendment to claim 3 is merely editorial, in light of the amendment to claim 1. Since the patentability of claims 3, 4, 17 and 22, which contain this feature, has already been considered, no additional searching should be required. Entry of this amendment is therefore solicited.

Claims 1-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Izubayashi et al. (EP 3290594) in view of Tsai et al. (WO97/37078). Reconsideration is requested in light of the amendment *supra* and the following remarks.

There is no disclosure in Izubayashi (EP 320594), of an emulsifier containing oligomer formed from a monomer blend comprising (meth)acrylamide, an organic mercaptan or organic sulphone, and an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group as now called for in claim 1. Nor is there any suggestion in Izubayashi that would lead the skilled reader to include all of these materials in the emulsifier. As is made clear in the specification of the Application (see for example page 7 last paragraph), the inclusion in the oligomer of the above ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group improves the printability of paper sized in accordance with the method of claim 1. Again there is no indication in Izubayashi that this advantage could be obtained.

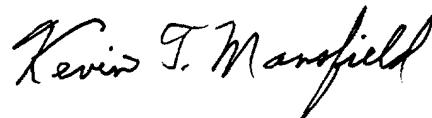
Tsai et al. (WO97/37078) fails to heal the deficiencies of Izubayashi. Tsai is directed to styrene-containing copolymers and is silent about an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group. Moreover since Izubayashi is silent about styrene-containing copolymers, the combination is improper *per se*. And even if proper it would suggest the invention presently claimed.

Reconsideration and withdrawal of the rejection of claims 1-26 under 35 U.S.C. § 103(a) as being unpatentable over Izubayashi et al. (EP 3290594) in view of Tsai et al. (WO97/37078) is therefore respectfully solicited.

Since there are no other grounds of objection or rejection, passage of this application to issue with claims 1-26 is earnestly solicited.

Applicants submit that the present application is in condition for allowance. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Respectfully submitted,



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R₁ is C₁₋₄ alkyl,

R₂ is C₁₋₄ alkyl,

R₃ is -H or C₁₋₈ alkyl, C₅₋₇ cycloalkyl or benzyl , and

X⁻ is an anion.

APPENDIX: Marked up version of amended claims.

1. (amended) A method of sizing paper or paper board by applying a composition (A) to at least one of,

iii) the surface of a formed paper or paper board sheet,

iv) a paper or paper board making cellulosic suspension prior to draining,

wherein the composition (A) comprises an aqueous dispersion of polymeric particles of particle size up to 1 micron, wherein the polymeric particles comprise a water insoluble polymer matrix, comprised of ethylenically unsaturated monomer or ethylenically unsaturated monomer blend, ~~characterised in~~ ~~that wherein~~ an oligomer formed from a monomer blend comprising,

(c) (meth)acrylamide ~~and~~

(d) an organic mercaptan or organic sulphone, ~~and~~

~~(c) an ethylenically unsaturated monomer comprising either a tertiary amine group or a quaternary ammonium group~~

is located at the surface of the polymer particles.

3. (twice amended) A method according to claim 1 wherein ~~the oligomer further comprises~~ component (c) ~~which is~~ comprises a compound of formula (1)

$\text{CH}_2=\text{CR-Q}$ (1),

wherein

Q is $-\text{C}(\text{O})\text{-Z-A-}$, $-\text{CH}_2\text{-N}^+\text{R}_1\text{R}_3\text{CH}_2\text{CR=CH}_2\text{ X}^-$ or $-\text{CH}_2\text{ NR}_1\text{CH}_2\text{CR=CH}_2$,

Z is -O- or -NH-,

A is $-\text{C}_n\text{H}_{2n}\text{-B-}$,

n is an integer from 1 to 4,

B is $-\text{NR}_1\text{R}_2$ or $-\text{N}^+\text{R}_1\text{R}_2\text{R}_3\text{ X}^-$,

R is -H or -CH₃,